

BAKUMENKO, S.P., inzh.; MIKHAYLOV, A.S., inzh.; TOLKACHEV, A.F., inzh.

Double tapered ingots. Stal' 24 no.12;1110-1112 D '64.

1. Izhevskiy metallurgicheskiy zavod.

(MIRA 18:2)

SINELBOV, M.A.; TOLKACHEV, A.K.

Tapping of pine trees with the aid of sulfuric acid. Sbor. trud.
TSNILKHI no. 12:178-183 '57. (MIRA 13:10)
(Tree tapping)

SINELOBOV, M.A.; SUKHOV, G.V.; TIMOFEEV, M.P.; TOLKACHEV, A.K.

New tapping method using chemical stimulation. Gidroliz. i lesokhim.prem.
9 no.1:15-17 '56. (MLRA 9:6)

1. TSentral'nyy nauchno-issledovatel'skiy lesokhimicheskiy institut.
(Tree tapping)

TOLKACHEV, A.K.; SINELOBOV, M.A.

Increasing the resin yield by advance cutting of streak in tree.
Gidroliz. i lesokhim. prom. 11 no.3:12 '58. (MIRA 11:5)

1. Tsentral'nyy nauchno-issledovatel'skiy lesokhimicheskiy institut.
(Tree tapping)

TOLKACHEV, Andrey Kirillovich, SINELOBOV, Mikhail Alekseyevich; USTINOVICH,
B.P., redaktor; SARMATSKAYA, G.I., redaktor izdatel'stva; SHITS, V.P.,
tekhnicheskiy redaktor

[Innovations in the tapping of pine and spruce] Novoe v podsochke
sosny i eli. Moskva, Goslesbumizdat, 1956. 61 p. (MLRA 9:11)
(Pine) (Spruce) (Tree tapping)

TOLKACHEV, A.K.

New methods in stimulating the formation of resin in pine trees. M. A. Sinegov, G. V. Sutkov, M. P. Timofeev, and A. K. Tolkachev. *Gidrolis i Lesokhim. Prom.*, 9, No. 1, 16-17(1958).—The use of H_2SO_4 as the stimulant, and the techniques of application are discussed. The acid was added as concd., 50% dil., or imbibed into siliceo acid gel, $Al(OH)_3$, and natural aluminosilicates. Small cuts of 1.5-mm. radius at an approx. angle of 45° were less injurious to trees and affected an increased response to the action of the acid. A 30-day period between incisions, cuts at varying heights, usually 80 cm., and 95% H_2SO_4 gave the optimum results. Other preps., including HCl and $Ca(OCl)_2$, increased the formation of resin to a lesser degree than H_2SO_4 .
T. Jurcic

(4)

TOLKACHEV, A.K.; SINELOBOV, M.A.

Intensive method of tapping firs. Der. i lesokhim. prom. 3 no.12:
12-13 D '54.
(MLRA 8:1)

1. TSentral'nyy nauchno-issledovatel'skiy lesokhimicheskiy institut.
(Tree tapping)

Tolkačev, A.K.
TOLKACHEV, A.K., slesar'

Review the guaranteed service period for repaired electric machines.
Elek. i tepl. tsiaga no.12:44 D '57. (MIRA 11:1)

1. Elektromashinnyy tsakh depo Zlatoust Yuzhno-Ural'skoy dorogi.
(Electric machines--Maintenance and repair)

Influence of streak depth on the yield of oleoresin in pine turpentineing. A. K. Volkachev and M. A. Sineobov. Derozberennayaayushchaya i Lesokhim. Prom. 3, No. 5, 8-10(1954).—The effect of streak depth (I) on the yield of oleoresin ("II") was studied for 1 group of pines (35 days young trees) at the following values of I : 0, 1, 2, 3, 4 mm. The increased yield of II when the I was reduced from sporadic 1 to 2 mm was 10% for trees with nodes 1-2, 10-15 mm, and average yield of II was 1.5-2.5 g per tree.

TREYNIS, Anatoliy Mikhaylovich; ROMANOV, A.V., retsenzent; TOLKACHEV,
A.K., retsenzent; FEFILOV, V.V., red.; FILIMONOVA, A.I., red.
izd-va; PARAKHINA, N.L., tekhn. red.

[Tapping trees] Podsochka lesa. Moskva, Goslesbumizdat, 1961.
(MIRA 15:3)
356 p. (Turpentining)

TOLKACHOV, Andrey Kirillovich, kand. sel'skokhozyaystvennykh nauk;
SINEL'BOV, Mikhail Alekseyevich; USTINOVICH, B.P., red.;
SARMATSKAYA, G.I., red. izd-va; BACHURIKA, A.M., tekhn. red.

[New developments in the tapping of pine and spruce] Novoe v pod-
sochke sosny i eli. Izd.2. Moskva, Goslesbumizdat, 1957. 66 p.
(Tree tapping) (MIRA 11:7)

TOLKACHEV, A.K.; SINELOBOV, M.A.

Effect of the depth of the cut on the yield of turpentine from tapped pine trees. Derg. i lesokhim.prom. 3 no.5:8-10 My '54. (MLRA 7:6)

1. Тапливі (Tree tapping)

Ca

The content of resin in the resin fraction, in relation to the diameter of the cut tree. A. K. Volkachev. *Mit Kjvor. Gordeek. Akad. Nauk SSSR*, No. 38, p. 127. — The resin contents of tree stumps increases considerably with the increase of their diam. (the resin fractions of 20-cm. and 40-cm. stumps contain 0.95 and 28.68% of resin, resp.). More resin is formed in trees when their annual growth is greater. The resin content also increases with the diam. of the core and the width of the annual rings. Most resin occurs in the collar, least in the roots. The higher resin content in stumps of larger diam. is attributed to (1) the flow of resin from the existing system of resin ducts into the formed layer of the heart wood and (2) the transformation of the fatty acids into resin by the transfer of the resin by water (Mau and Lysabinskii) or by the transformation of cellulose into resin (Duspol). Was not confirmed. Fifteen references. W. R. H.

APPENDIX METALLURGICAL LITERATURE CLASSIFICATION

TOULKACHEV, A.K.; SINELOBOV, M.A.

Some regularities of exudation in tapping pines. Der.i lesokhim.
prom. 3 no.3:13-16 Mr '54. (MLRA 7:3)

1. TsNIIKhI.

(Tree tapping)

TOLKACHEV, A.L.

A high technical standard for the modern toy. Det. khor.
igr. no.1:19-20 '55. (MLRA 10:2)

1. Nachal'nik otdela pavil'ona Vsesoyuznoy torgovoy palaty.
(Toys)

MENZHELIY, V.G.; TOLKACHEV, A.M.

Density of ammonia and methane in the solid state. Fiz. tver. tela 5
(MIRA 17:2)
no.12:3413-3419 D '63.

1. Fiziko-tehnicheskiy institut nizkikh temperatur AN UkrSSR, Khar'kov.

L 29300-66 EWT(m)/EWP(t)/ETI IJP(c) JD/WN/JW
ACC NR: AP6012458 SOURCE CODE: UR/0181/66/008/004/1035/1039
65
B

AUTHORS: Manzheliy, V. G.; Tolkachev, A. M.

ORG: Physicotechnical Institute of Low Temperatures AN UkrSSR, Khar'kov
(Fiziko-tehnicheskiy institut nizkikh temperatur AN UkrSSR)

TITLE: Thermal expansion of crystalline ammonia

SOURCE: Fizika tverdogo tela, v. 8, no. 4, 1966, 1035-1039

TOPIC TAGS: ammonia, thermal expansion, low temperature research,
specific heat, temperature dependence

ABSTRACT: The authors have determined the coefficient of linear expansion of crystalline ammonia in the temperature interval 24 -- 175K, using a specially designed quartz dilatometer (Fig. 1), whose low temperature part is constructed of transparent quartz in glass to permit a visual observation of the crystallized gas. The procedure for maintaining the crystal temperature, measuring the temperature, and crystallizing the gas was described by the authors in an earlier paper (FTT v. 7, 2125, 1965). The coefficient of linear expansion exhibited nearly linear growth with rising temperature. The values of the specific heat at constant volume and of the Gruneisen coefficient calculated from the experimental data exhibited an unusual behavior, in that the curve of the

Card 1/3

L 29300-66

ACC NR. AP6012458

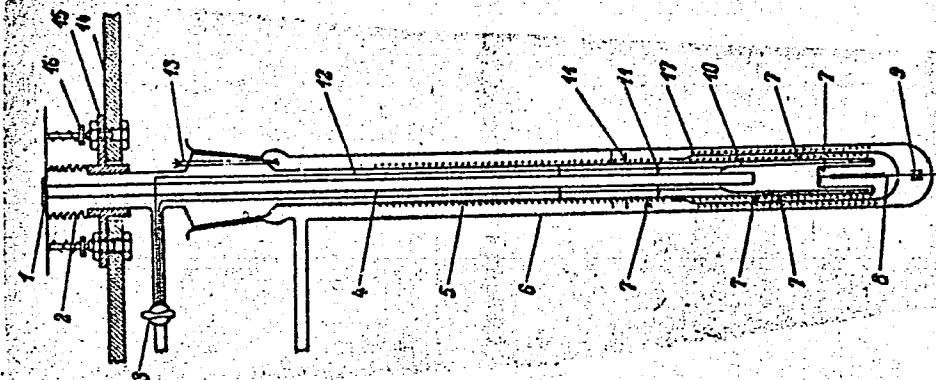


Fig. 1. Diagram of dilatometer. 1 -- Bearing platform, 2 -- bellows, 3 -- gate, 4 -- rod, 5 -- quartz ampoule, 6 -- inner ampoule, 7 -- thermocouples, 8 -- cold finger, 9 -- cup of cold finger, 10 -- glass cylinder, 11 -- screens, 12 -- filaments, 13 -- leads, 14 -- plate, 15 -- guiding bushing, 16 -- adjusting nuts, 17 -- adiabatic jacket.

Card

2/3

L 29300-66

ACC NR: AP6012458

2

temperature dependence of the coefficient of linear expansion showed two points of inflection, and the Gruneisen coefficient exhibited a strong temperature dependence. This suggests the existence of a second mechanism, other than the lattice mechanism of thermal expansion. This additional mechanism is attributed to hindered rotation of the molecules and its effect on the thermal expansion of the crystal. In view of the low accuracy of the experiment, the agreement between the experimental and calculated values is regarded as good. The authors thank B. G. Udovidchenko for developing the small-displacement meter and Ye. I. Voytovich for help with the measurements. Orig. art. has: 2 figures, 3 formulas, and 1 table.

SUB CODE: 20/ SUBM DATE: 09Aug65/ ORIG REF: 003/ OTH REF: 001

Card

3/3 BK

L 33L0-66 E/T(d)/E/T(1)/E/T(m)/EPF(c)/EEC(k)-2/EPF(n)-2/EMP(j)/T/EMP(t)/EMP(s)/
E/T(m) IJF(c) JD/MH/RM
ACCESSION NR: AP5017308 UR/0181/65/007/007/2125/2128

AUTHORS: Tolkachev, A. M.; Manzhelyy, V. G.

TITLE: Density of solidified gases

SOURCE: Fizika tverdogo tela, v. 7, no. 7, 1965, 2125-2128

TOPIC TAGS: solid physical property, gas density, nitrogen, oxygen,
methane, ammonia

ABSTRACT: The method employed in this investigation for the determination of the density of solidified gases was described in detail earlier (FTT v. 5, 3413, 1963). The present article describes a new variant of pycnometer for use with this method. The pycnometer can be operated at a temperature other than that of liquified gas and its temperature can be maintained constant. The pycnometer is shown in Fig. 1 of the Enclosure. It was used to determine the densities of solid nitrogen (at 20.4, 50.8, and 62.2K), oxygen (52.2K), methane (20.4K), and ammonia (20.4K). The corresponding densities are 1.0253, 0.9677, 0.9456, 1.3625, 0.5225, and 0.8666, respectively. The

Card 1/3

L 3340-66

ACCESSION NR: AP5017308

authors thank Ye. I. Voytovich for participating in the measurements.
Orig. art. has: 1 figure and 1 table

ASSOCIATION: Fiziko-tehnicheskiy institut nizkikh temperatur,
Khar'kov (Physicotechnical Institute of Low Temperatures)

SUBMITTED: 08Feb65

ENCL: 01

SUB CODE: SS,ME

NR REF Sov: 001

OTHER: 019

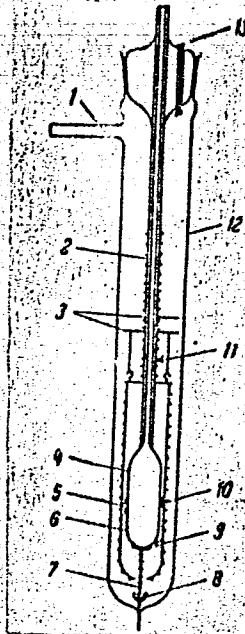
Card 2/3

I-3340-66

ACC NR. AP5017308

Fig. 1. Scheme of low temperature device section for determination of the density of solidified gases.

ENCLOSURE: O1



1. outlet
2. capillary
3. screens
4. adiabatical screen
5. pycnometer
6. cooling duct
7. cooling duct cap
8. thermocouples
- 9, 10, 11. thermocouples
12. housing
13. conductors outlets

L 21248-66 EPF(n)-2/T/EWP(t)/ETC(m)-6 IJP(c) JD/GG/RM
ACC NR: AP6005439 SOURCE CODE: GE/0030/66/013/002/0351/0358

AUTHOR: Manzheliy, V. G.; Tolkachev, A. M.; Voytovich, Ye. I.

ORG: Institute of Low-temperature Physics and Technology AN UkrSSR, Kharkov
(Fiziko-tehnicheskiy institut nizkikh temperatur)

TITLE: Thermal expansion of crystalline nitrogen, oxygen, and methane

SOURCE: Physica status solidi, v. 13, no. 2, 1966, 351-358

TOPIC TAGS: nitrogen, oxygen, methane, crystal, thermal expansion

ABSTRACT: The experimental data obtained on the physical properties of crystals with simple molecular structure cannot often be properly interpreted because of the lack of data on thermal expansion of the crystals. The thermal expansion data are also important for verifying many conclusions based on the dynamic theory of a lattice. This paper deals with the linear coefficients of thermal expansion of crystallized solid nitrogen, oxygen, and methane for which the linear coefficients were measured in the temperature range 21 to 45K, 21 to 45K, and 21 to 60K, respectively. As in the first-order phase transformation temperatures are approached from the low-temperature phase side, the linear expansion coefficients exhibit an anomalously rapid increase. A possible explanation of these anomalies based on the idea of lattice orientation defects in molecular crystals is given. The specific heat at constant volume and the Grueneisen coefficient for crystalline methane are calculated and a possible explanation of the low values for the Grueneisen co-

L 21248-66

ACC NR: AP6005439

efficients is offered. The graphs of the temperature dependence of the linear expansion coefficient for crystalline nitrogen, oxygen, and methane are presented. Authors thank V. I. Peresada, B. Ya. Sukharevskiy, L. S. Kukushkin, and I. O. Kulik for valuable discussions. Orig. art. has: 5 figures, 1 table, and 3 formulas. [JKP]

SUB CODE: 20/ SUBM DATE: 11Nov65/ ORIG REF: 001/ OTH REF: 001/ SOV REF: 004/

Card 2/2 ALG

MANZHELIY, V.G. [Manzhelii, V.H.]; TOIKACHEV, A.M.

Device for investigating the diffusion of weakly soluble gases
in nonvolatile liquids. Ukr.fiz.zhur. 5 no.3:431-433 My-Je
'60. (MIRA 13:7)

1. Khar'kovskiy gosudarstvennyy universitet.
(Diffusion)

TOLKACHEV, A.N., kandidat sel'sko-khozyaystvennykh nauk; SINELOBOV, M.A.

Methods of carrying out tree tapping experiments. Der.i lesokhim. prom.
3 no.2:12-14 F '54. (MLRA 7:1)

1. TSNILKHI.

(Tree tapping)

YEMEL'YANOV, A.D., red.; TOLKACHEV, A.S., red.; KONIKOV, L.A., red.;
PONOMAREVA, A.A., tekhn.red.

[Economic efficiency of production mechanization and automation]
Ekonomicheskaia effektivnost' mekhanizatsii i avtomatizatsii
proizvodstva. Pod red. A.D.Emel'yanova i A.S.Tolkacheva. Moskva,
Izd-vo ekon.lit-ry, 1962. 347 p. (MIRA 15:4)

1. Moscow. Nauchno-issledovatel'skiy ekonomichekskiy institut.
2. Nauchno-issledovatel'skiy ekonomicheksiy institut Gosekonomsoveta SSSR (for Yemel'yanov, Tolkachev).
(Automation) (Machinery in industry)

BOCHAROV, V.N.; DUDAYEVA, L.M.; YEVROKIMOV, V.M.; KOLOSOV, A.F.;
KRASOVSKIY, V.P.; LUK'YANOV, E.B.; MUSATOVA, V.A.; NOVIKOV,
M.S.; SUKHOVANCHENKO, G.P.; TABELEV, V.V.; TOLKACHEV, A.S.;
CHERTKO, V.F. [deceased]; SHTANSKIY, V.A.; PAK, G.V., red.;
SELESNEVA, A.D., mlad. red.

[Structure of capital investments in the U.S.S.R. and the
U.S.A.; analysis and methods of comparison] Struktura kapi-
tal'nykh vlozhenii SSSR i SShA; analiz i metody sopostav-
leniya. Moskva, Ekonomika, 1965. 250 p. (MIRA 18:5)

1. Moscow. Nauchno-issledovatel'skiy ekonomicheskiy insti-
tut.

TOLKACHEV, A. S.

"Economic conditions for development of machine building and its role
for country industrialization"

report to be submitted for the United Nations Conference on the
Application of Science and Technology for the Benefit of the Less
Developed Areas - Geneva, Switzerland, 4-20 Feb 63.

GONCHARENKO, B.L., red.; PETRUSHIN, M.I., kand.ekonom. nauk, red.; SAMBORSKIY, G.I., kand. ekon. nauk, red.; TOLKACHEV, A.S., kand. ekon. nauk, red.; TOMLENOVА, A.K., red.; PONOMAREVA, A.A., tekhn. red.

[Continuity in planning and state plan indices] Nepreryvnost' v planirovani i pokazateli gosudarstvennogo plana. Pod red. B.L.Goncharenko i dr. Moskva, Izd-vo ekon.lit-ry, 1962. 439 p. (MIRA 15:8)

1. Moscow. Nauchno-issledovatel'skiy ekonomicheskiy institut.
2. Nauchno-issledovatel'skiy ekonomicheskiy institut Gosudarstvennogo nauchno-ekonomiceskogo soveta Soveta Ministrov SSSR (for Petrushin, Samborskiy, Tolkachev).
(Russia--Economic policy) (Index numbers (Economics))

TOLKACHEV, A.V., kand.tekhn.nauk, dots.

More efficient are of diesel locomotives. Sbor. nauch. trudov
TASHIIT no.7:4-10 '57. (MIRA 11:4)
(Diesel locomotives)

TOLKACHEV, A.V., dots.; NAYMUSHIN, I.G., inzh.; KRAFT, G.A.

Operational experience of the TE2 diesel locomotive in passenger traffic. Zhel. dor. transp. 41 no.5:64 My '59.

(MIRA 12:7)

1. Zaveduyushchiy dinamometricheskim vagonom Tashkentskogo instituta inzhenerov zhelezodorozhnoe transporta (for Kraft).
(Diesel locomotives) (Railroads---Passenger traffic)

MIKHEYEV, D.P.; VINOGRADOV, L.A.; TOLKACHEV, A.V.; SMIRNOV, B.K., otv.red.; PEVZNER, A.S., zaveduyushchiy red.izd-va; TEMKINA, Ye.L., tekhn.red.

[Uniform time and pay standards for construction, assembly, and repair operations in 1960] Edinyye normy i rastsenki na stroitel'nye, montazhnye i remontno-stroitel'nye raboty, 1960 g. Moskva, Gos.izd-vo lit-ry po stroit., arkhit. i stroit.materialam. Sbornik 10. [Installing exterior networks of water-supply, sewer, gas-supply, and electric-heating systems] Montazh vneshnikh setei vodoprovoda, kanalizatsii, gazosnabzheniya i teplofifikatsii. 1960. 119 p. (MIRA 13:6)

1. Russia (1923- U.S.S.R.) Gosudarstvennyy komitet po delam stroitel'stva. 2. TSentral'noye normativno-issledovatel'skoye byuro (TsNIB) Glavmosstroya (for Vinogradov). 3. Normativno-issledovatel'skaya stantsiya No.6 Ministerstva stroitel'stva elektrostantsiy SSSR (NIS-6 MSES SSSR) (for Tolkachev). (Wages) (Pipe)

TOLKACHEV, A.V., kand. tekhn. nauk

Comparative calculation of the performance of locomotives and of
their traction load. Zhel. dor. transp. 41 no.10:28-29 O '59.

(MIRA 13:2)

(Locomotives--Performance)

BESKROVNYY, I.G., kandidat tekhnicheskikh nauk, dotsent; TOLKACHEV, A.V.,
kandidat tekhnicheskikh nauk, dotsent.

Firing locomotives with mixtures of Angren and Karaganda coals.
Trudy TASHIIT no.5:27-33 '56. (MLRA 9:12)
(Locomotives--Fuel consumption)

TOLKACHEV, A.V., kand. tekhn. nauk

Comparison indices of the utilization of locomotives. Vest.
TSNII MPS 22 no.3:36-39 '63. (MIRA 16:7)

1. Tashkentskiy institut inzhenerov zheleznodorozhного
transporta.
(Locomotives) (Railroads--Management)

TOLKACHEV, A.Ye.

Ventilating the scale car operator's cabin. Ondor.usl.trud.m zav.
no.5:33-40 '53. (MIRA 8:8)
(Metallurgical plants--Ventilation)

TOLKA @ HEV B.V. 120-4414/60
AUTHORS: Baradzey, L. T., Rubtsov V.I., Smorodin Yu.A.
Solov'yev M.V., Tolkachev B.V., Tulinova Z.I.,

TITLE: The Interaction of the Protons of Cosmic Rays With an Energy of
About 10 BeV With Lead-Nuclei (Vzaimodeystviye protonov kosmich-
eskikh luchey s energiyey okolo 10^{10} eV s yadrami svintsa).

PERIODICAL: Doklady Akad.Nauk SSSR, 1957, Vol. 115, Nr 4, pp. 685-688 (USSR)

ABSTRACT: These investigations were performed in an altitude of 9000 m by
means of a cloud chamber in a magnetic field with 9200 oersteds.
The scheme for the control mechanism of the chamber is illustrat-
ed by a sketch. In order to exclude the interactions caused by
pions, the nuclear showers caused in the lead-plate by one indi-
vidual charged particle were investigated. Altogether 38 of those
cases were selected, the characteristic photographs of the showers
are given. The maximum measured impulse of the charged particles
was 3 BeV/c. A table illustrates the distribution of the showers
on the number n of particles in the shower. The average number of
the particles per interaction is $3,9 \pm 0,3$. The experimental data
yield some indications concerning the chief components of the ele-
tron-nucleus showers. A diagram illustrates the data of the en-
ergy distribution of the electrons. When this spectrum is descri-
bed by a law of the type $dN/dE \sim E^{-\beta}$, the exponent β is variable. ($\beta=1$
in the case of small energies and $\beta \approx 2,5$ in the case of energies of

Card 1/2

The Interaction of the Protons of Cosmics Rays With an Energy of 20^{4-14/60}
About 10 BeV With Lead-Nuclei.

~1 BeV). Other diagrams illustrate the energy distribution of the protons and mesons. The electrons with an energy of > 2 BeV spend about 160 MeV for the interaction. The summary energy of the electrons amounts to about 430 MeV per interaction. In the interactions examined here energy-rich particles are radiated which were hitherto not yet taken into consideration. The excess of particles with high energy can not be ascribed to the charged pions, but must come from protons. A proton with ~10 BeV loses on the average 2/3 to 1/2 of its energy in the interaction with a lead-nucleus. The charged and the neutral pions carry away about 1/3 of the energy of the incident proton. The δ -particles carry with them about the same amount of energy. There are 3 figures, 1 table and 5 references, 3 of which are Slavic.

ASSOCIATION: Moscow State University imeni M.V.Lomonosov. Physical Institute AN USSR imeni P.N.Lebedev (Moskovskiy gos. universitet imeni M.V. Lomonosova, Fizicheskiy institut imeni P.N.Lebedeva AN SSSR).

PRESENTED: March 5, 1957 by D.V.Skobel'tsyn, Academician

SUBMITTED: December 21, 1956

AVAILABLE: Library of Congress.

Card 2/2

L 24662-65 EWT(m)/ DIAAP
ACCESSION NR: AT4049957

S/2504/64/026/000/0224/0248

23
24
B+1

V. I. Smorodin, Yu. A.; Solov'yen, M. V.

PHYSICS OF NUCLEAR

MESONS

UDC 537.553.52:537.553.52(01) 64. Krasnogorskaya Luch

TOPIC: LATTICE FIELD THEORY
INTERACTION OF EXOTIC PARTICLE

RESULTS are discussed, taking into account the interaction between nucleons in the form of a two-dimensional lattice. It is shown that the fraction of energy released in effective interaction of nucleon

Card 1, 3

L 24662-65

ACCESSION NR: AT4049957

transferred to the electron-photon conversion during interaction with nuclei of the Δ^{++} is such that

Thus, the differential cross section for the production of pions in the reaction $e + \Delta^{++} \rightarrow e + \pi^{\pm} + \Delta^{+}$ is given by

Calculation of charged pion flux indicates that the generation of mesons of different

"APPROVED FOR RELEASE: 07/16/2001

CIA-RDP86-00513R001756110003-7

L 24561-65

ACCESSION NR: A14043951

2

2
P. C. will be the P. C. and will be P. A. Attorney for carrying out the
plan of the CIA. P. C. will be P. A. Attorney for carrying out the

APPROVED FOR RELEASE: 07/16/2001

CIA-RDP86-00513R001756110003-7"

LEBEDEV, A.M.; SLAVATINSKIY, S.A.; TOLKACHEV, B.V.

Interaction cross section and the fraction of energy conserved
by nucleons in collisions with complex nuclei. Zhur.eksp.i
teor.fiz., 46 no.6:2151-2155 Je '64.

1. Fizicheskiy institut imeni P.N. Lebedeva AN SSSR.
(MIRA 17:10)

RUBTSOV, V.I.; SMORODIN, Yu.A.; TOLKACHEV, B.V.

Mean free path of $\sim 10^{12}$ ev. nucleons in carbon. Zhur.
ekspl. i teor. fiz. 44 no.2:462-468 F '63. (MIRA 16:7)

1. Fizicheskiy institut imeni P.N. Lebedeva AN SSSR.

ACCESSION NR: AP4012521

S/0056/64/046/001/0043/0049

AUTHOR: Tolkachev, B. V.

TITLE: Investigation of the interaction of 300--6000 GeV nucleons
at altitudes of 6--12 km

SOURCE: Zhurnal eksper. i teoret. fiz., v. 46, no. 1, 1964, 43-49

TOPIC TAGS: cosmic rays, nucleon spectra, nuclear active component,
nucleon interaction, nucleon integral spectrum, nucleon mean free
path, nucleon absorption, nucleon absorption free path, nucleon
energy loss

ABSTRACT: Nucleon spectra were measured in the energy interval
 3×10^{11} -- 6×10^{12} eV at altitudes 12, 9, and 6.4 km. The purpose
of the investigation was to recalculate the fraction of the energy
retained by the nucleon after interaction, in light of new measure-
ments by the author (ZhETF, v. 44, 462, 1963) which make the pre-

Card 1/12

ACCESSION NR: AP4012521

viously established figure (70%) doubtful. It is shown that at these altitudes and at these energies the integral spectra can be described by a single power-law formula of the form $N(>E) \sim E^{-\gamma}$, where $\gamma = 1.90 \pm 0.10$. The mean free path for the absorption of nucleons with energy 3×10^{11} ev in air was found to be $L = 121 \pm \pm 3$ g/cm². By comparing the mean free path for absorption and the mean free path for inelastic interaction in air, the average fraction of the energy retained by the nucleon was estimated to be $0.40^{+0.07}_{-0.13}$. "In conclusion, the author expresses deep gratitude to Yu. A. Smorodin and N. L. Grigorov for useful discussions." Orig. art. has: 2 figures, 8 formulas, and 2 tables.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva AN SSSR
(Physics Institute, AN SSSR)

Card 212 Sub 4 July 03

V. V. GUSEVA, S. A. DUBROVINA, A. M. LEBEDEV, N. E. MOROZOV, L. A. SANKO,
V. V. SOKOLOVSKIY, S. A. SLAVATINSKIY, B. V. TOLKACHEV

Analysis of Experimental Data on Interactions of Nucleons and Atomic Nuclei
at High Energies

report submitted for the 8th Intl. Conf. on Cosmic Fays (IUPAP), Jaipur India,
2-14 Dec 1963

BARADZEY, L. T., RUBTSOV, V. I., SOLOVYEV, M. V. and TOLKACHEV, B. V.

"Production of the Electron-Photon Component in the Interaction of
Particles of Energies 10^{12} to 10^{14} ev with Light Nuclei in Atmosphere"

Report presented at the International Conference on Cosmic Rays and
Earth Storm, 4-15 Sep 61, Kyoto, Japan.

P. N. Lebedev Physical Institute of the Academy of Science of the USSR and
Nuclear Physics Research Institute of the Moscow University, USSR

TOLKACHEV, B.V.

3.2410 (2205, 2705, 2805)

S/046/62/026/005/004/022
B108/B104

AUTHORS: Baradzey, L. T., Rubtsov, V. I., Smorodin, Yu. A.,
Solov'yev, M. V., and Tolkachev, B. V.

TITLE: Formation of an electron-photon component in the interaction
of particles of 10^{12} - 10^{14} ev with light nuclei in the
atmosphere

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya, v. 26,
no. 5, 1962, 575-584

TEXT: With the aid of ionization chambers with an area of 0.2 m^2 , the
authors obtained data on: (1) the energy spectra of electron-photon
avalanches falling upon the apparatus from the air at pressures of 200, 300,
and 1030 g/cm^2 ; (2) the energy spectra of cascades induced by nuclear-
active particles in the graphite block above the apparatus at pressures of
200 and 300 g/cm^2 ; (3) the air showers accompanying the particles. The
particle densities in the showers were determined immediately at the

Card 1/3

S/048/62/026/005/004/022
S106/S104

Formation of an electron-photon...

apparatus and 10 m away from it. The major part of photons is produced by particles of an energy exceeding the photon energy by one order of magnitude. The photon spectra at high energies (above $2 \cdot 10^{12}$ ev) differ considerably from those obtained at low energies. This is probably due to increased energy dissipation by new secondary radiation processes. The absorption path of nuclear-active particles in the atmosphere can be determined from the absorption path of the component producing the electromagnetic cascade in the light substance, or from the absorption path of the component producing high-energy photons in the atmosphere. The coefficient of inelasticity of nucleon interaction remains unchanged over a wide range of energies. The intensity of primary cosmic radiation in the

energy range $2 \cdot 10^{11} - 2 \cdot 10^{13}$ ev is

$$N(>E) = (600 \pm 150)(E/10^{12})^{-1.7 \pm 0.15} \text{ hr}^{-1} \text{ m}^{-2} \text{ sterad}^{-1}.$$

This spectrum is consistent with results of more accurate calculations.
There are 9 figures and 3 tables.

Card 2/3

Formation of an electron-photon...

S/048/62/026/005/004/022
B108/B104

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR
(Physics Institute imeni P. N. Lebedeva of the Academy of Sciences USSR); Nauchno-issledovatel'skiy institut yadernoy fiziki Moskovskogo gos. universiteta im. M. V. Lomonosova (Scientific Research Institute of Nuclear Physics of the Moscow State University imeni M. V. Lomonosov)

Card 3/3

ACCESSION NR: AP4042580

S/0056/64/046/006/2151/2155

AUTHORS: Lebedev, A. M.; Slavatinskiy, S. A.; Tolkachev, B. V.

TITLE: Interaction cross section and energy fraction retained by nucleons in collisions with complex nuclei

SOURCE: Zh. eksper. i teor. fiz., v. 46, no. 6, 1964, 2151-2155

TOPIC TAGS: nucleon, nucleon scattering, nuclear structure, nucleus, inelastic scattering

ABSTRACT: In view of recent deductions that the nucleons are not uniformly distributed in nuclei, and in view of the more accurate values of the mean square radius of the nucleon and of the elementary cross section obtainable from measurements with accelerators, the authors calculate cross sections for the inelastic interaction of nucleons with complex nuclei on the basis of the optical model of the nucleus. The dependence of the interaction cross section on the

Card 1/3

ACCESSION NR: AP4042580

atomic weight of the nucleus of the target is evaluated with allowance for the nuclear structure and by using more refined data on the elementary cross sections. The obtained dependence of the cross section on the atomic weight of the target nucleus, $\sigma = \sigma_0 A^{3/4}$, is in good agreement with the experimental data, over a wide range of energies, from $\sim 10^{10}$ to $\sim 10^{12}$ ev. The values calculated on the basis of the model of successive collisions between the nucleon and the nucleons of the nucleus yield for the fraction of the energy retained by the nucleon after interaction with complex nuclei values which do not disagree with the measurement results. The authors calculate the multiplicity of the collisions for different nuclei, as well as the fraction of the energy retained by the nucleon after the interaction. "In conclusion the authors are deeply grateful to N. A. Dobrotin for continuous interest in the work and for stimulating it, to Ye. L. Feynberg and A. Ye. Chudakov for useful advice,

Card 2/3

ACCESSION NR: AP4042580

and to Z. S. Maksimova for carrying out many numerical calculations."
Orig. art. has: 3 figures and 10 formulas.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk
SSSR (Physics Institute, Academy of Sciences SSSR)

SUBMITTED: 20Dec63 DATE ACQ: ENCL.: 00

SUB CODE: NP NR REF SOV: 010 OTHER: 008

Card 3/3

TOLKACHEV, B.V.

Studying nucleon interactions in the energy range $3 \cdot 10^{11}$ - $6 \cdot 10^{12}$ ev.
at altitudes of 6 -- 12 km. Zhur. eksper. i teor. fiz. 46
no.1:43-49 Ja'64. (MIRA 17:2)

1. Fizicheskiy institut imeni P.N. Lebedeva AN SSSR.

TOLKACHEV, B. V.

24.6700
3.2410 (2705, 2805, 1559)

31531
S/627/60/002/000/013/027
D299/D304

(1)

AUTHORS: Baradzey, L. T., Rubtsov, V. I., Smorodin, Yu. A., Sovlov'yev, M. V. and Tolkachev, B. V.

TITLE: Absorption of high-energy nucleons in the atmosphere

SOURCE: International Conference on Cosmic Radiation. Moscow, 1959. Trudy. v. 2. Shirokiye atmosfernyye livni i kadnyye protsessy, 152-158

TEXT: The apparatus which was installed in an aircraft permitted studying large ionization bursts at various depths in the atmosphere: $p = 200 \text{ gm/cm}^2$, $p = 310 \text{ gm/cm}^2$, $p = 1020 \text{ gm/cm}^2$. The apparatus incorporated ionization chambers and hodoscoped counters. The energy spectrum of the electron-photon component was obtained, for energies of $2 \cdot 10^{10}$ to $2 \cdot 10^{12}$ ev. It was found that in most cases the energy of the electron-photon component collimates well around the shower axis which lies in the area of the ionization chambers. A table shows the mean ionization-distribution in the chambers. The fast drop in energy density with distance from the shower axis

Card 1/5

31531
S/627/60/002/000/013/027
D299/D304

Absorption of high-energy ...

shows that the recorded events are cascade showers of primary particles, namely gamma-quanta showers formed by the decay of π^0 -mesons. The differential spectra of the electron-photon component show that for energies of $2 \cdot 10^{10}$ to $2 \cdot 10^{12}$ ev. the spectrum can be approximated by a power law with exponent $\zeta = 2.75 \pm 0.07$ for all the altitudes under consideration. The electron energy spectrum for the one-dimensional problem was calculated in the approximation A which is sufficient for the small distances from the shower axis involved. The exponential change in atmospheric density was taken into account by means of Greisen's approximate method (Ref. 1: Filizika kosmicheskikh luchey (translation into Russian of "Progress in Cosmic Ray Physics", edited by J. G. Wilson), v. 3, chapt. 1, IL, 1958). The differential energy spectrum of the electron-photon component is

$$\frac{dN}{dE} = AE^{-\xi} \int_0^{\infty} \alpha(t, E) \xi^{-1} \left(1 - \frac{\partial \ln \alpha}{\partial \ln E}\right) e^{\frac{t}{\xi}} dt = AE^{-\xi} C(E, P) \quad (2)$$

Card 2/5

31531
S/627/60/002/000/013/027
D299/D304

Absorption of high-energy ...

where C is the thickness of the effective layer for photon generation. Thereupon, the photon generation spectrum is obtained. The absorption length of the component which generates photons of energy 10^{11} to 10^{12} ev. is 120 gm/cm^2 . Further, the energy of the nuclearactive particles is estimated which generate the photons. It was found that at pressures of 200 and 310 gm/cm^2 , the electron density drops in accordance with the law $r^{-0.7 \pm 0.1}$, up to distances of 10 m from the ionization chambers. This table shows also the values of the energy of nuclearactive particles. It was established that the photons are generated by nuclearactive particles, whose energy is a hundredfold the energy of the photons. The study of electron-photon cascades at high altitudes, where the effective recording-layer is small, permits investigating the generation of the electron-photon component by the interaction of nuclearactive particles with energies of $10^{13} - 10^{14}$ ev., with light nuclei. The absolute intensity of the nuclearactive component was obtained on the assumption that on interacting with the carbon nucleus, the

Card 3/5

31531
S/627/60/002/000/013/027
D299/D304

Absorption of high-energy ...

high-energy nucleon transmits 10% of its energy to the π^0 -mesons. The conclusion was reached that the absorption length of nuclear active particles with energies of 10^{11} to 10^{13} ev. does not change, remaining close to 120 gm/cm^2 . In this energy range, the spectrum of the primary cosmic particles is

$$N(>E) = 900 \left(\frac{E}{10^{12}} \right)^{-1.5} \frac{\text{particle}}{\text{m}^2 \text{ hour sterad}}$$

(4) 4

The relation between the differential spectrum of the nuclear active component (expressed by $E_0^{-\gamma}$), the differential spectrum of the generated π -mesons ($E^{-\beta}$), and the energy of the π -mesons (following the law $E_\pi = \text{const} \cdot E_0^\alpha$), yields the formula

$$\beta = \frac{\alpha - 2}{\gamma - 2} \quad (5)$$

Card 4/5

Absorption of high-energy ...

31511
S/627/60/002/000/013/027
D299/D304

From the experimental data it follows that $\delta \sim 0.5$; with a correction for the small number of high-energy particles, one obtains $\delta \sim 1$. There are 4 figures, 4 tables and 7 references: 4 Soviet-bloc and 3 non-Soviet-bloc (including 1 translation). The references to the English-language publications read as follows: M. F. Kaplon, J. Z. Klose, D. M. Ritsion, W. O. Walker, Phys. Rev., 91, 1573, 1953; K. Kamata, J. Nishimura, Suppl. of Progr. Theor. Phys., no. 6, 93, 1958.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva AM SSSR(Physics Institute im. P. N. Lebedev AS USSR); Nauchno-issledovatel'skiy institut yadernoy fiziki MGU (Scientific Research Institute of Nuclear Physics Moscow State University)

Card 5/5

BARADZENY, L.T.; RUBTSOV, V.I.; SMORODIN, Yu.A.; SOLOV'YEV, M.V.; TOIKACHEV,
B.N.; TULINOVA, Z.I.

Formation of electron-photon components in the reaction between
cosmic-ray particles with energies exceeding 10^{11} ev. and beryllium
nuclei [with summary in English]. Zhur. eksp. i teor. fiz. 33 no.1:
17-20 Jl '57. (MLRA 10:9)

1. Fizicheskiy institut im. P.N. Lebedeva Akademii nauk SSSR.
(Cosmic rays) (Nuclear reactions)

TOLKACHEV, B. V.

ABSORPTION OF NUCLEONS WITH ENERGIES FROM 10^{11} TO 10^{13} ev IN AIR
A.T. Baradze, V.I. Rubtsov, Yu.A. Smorodin, M.V. Solov'yev, B.V. Tolkachev

1. Nucleons in the energy range from 10^{11} to 10^{13} ev were studied at altitudes corresponding to pressures of 300 gms/cm².

The instruments used made it impossible to record ionization bursts due to the multiplication in lead of the electron-photon component generated by the interaction of high energy particles with carbon nuclei. 2 trays of cylindircal ionization chambers were placed under 4 and 8 rad.units of lead, respectively. The magnitude of the ionization burst in each chamber was recorded. Hodoscope counter set at distances from 0 to 10 m enabled us to detect air showers.

Report presented at the International Cosmic Ray conference, Moscow, 6-11 July 1959

TOLKACHEV, B.V.

BARADZHEY, L.T.; RUBTSOV, V.I.; SMORODIN, Yu.A.; SOLOV'YEV, M.V.; TOLKACHEV,
B.V.; TULINOVA, Z.I.

Interaction of cosmic ray protons at 10 Bev energies with Pb
nuclei. Dokl. AN SSSR 115, No. 57. (MIRA 10:12)

1. Moskovskiy gosudarstvennyj universitet im. M.V. Lomonosova i Fizi-
cheskiy institut im. P.N. Lebedeva. Izdatelstvo Nauk. Predstavлено академиком
D.V. Skobel'tsynym.
(Cosmic rays) (Collisions (Nuclear physics))

BARADZEV, L.T.; RUBTSOV, V.I.; SMORODIN, Yu.A.; SOLOV'YEV, M.V.; TOLKACHEV,
B.V.; TULINOVA, Z.I.

Interactions of cosmic-ray protons and light nuclei based on cloud
chamber measurements at an altitude of 9 km. Izv.AN SSSR.Ser.fiz.
19 no.5:502-507 S-0 '55. (MLRA 9:4)

1.Fizicheskiy institut imeni P.N.Lebedeva Akademii nauk SSSR i
Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova.
(Cosmic rays) (Nuclear physics)

BARADZEY, L.T.; RUBTSOV, V.I.; SMORODIN, Yu.A.; SOLOV'YEV, M.V.;
TOLKACHEV, B.V.

Formation of the electron-photon component in the interaction of
particles with an energy of 10^{12} - 10^{14} ev. with light nuclei in
the atmosphere. Izv.AN SSSR.Ser.fiz. 26 no.5:575-584 Ap
'62. (MIRA 15:5)

l. Fizicheskiy institut im. P.N.Lebedeva AN SSSR i Nauchno-
issledovatel'skiy institut yadernoy fiziki Moskovskogo
gosudarstvennogo universiteta im. M.V.Lomonosova.
(Cosmic rays) (Photonuclear reactions)

S/056/63/044/002/010/065
B102/B186

AUTHORS: Rubtsov, V. I., Smorodin, Yu. A., Tolkachev, B. V.

TITLE: The mean free path of $\sim 10^{12}$ ev nucleons in carbon

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 44,
no. 2, 1963, 462-468

TEXT: The mean free paths of cosmic nucleons in the 10^{12} ev range were determined for carbon at altitudes of 9 and 12 km. The experimental apparatus brought into these regions by an aeroplane, consisted of (from top to bottom): a graphite lump (325 g/cm^2), a lead plate (23 g/cm^2), a row of ionization counters (for the electron-photon showers), an aluminum lump (66 g/cm^2), lead (19 g/cm^2), another row of counters, lead (19 g/cm^2), counters, and again lead (25 g/cm^2). The total ionizations of the three chamber rows were recorded by a cylindrical ionization chamber ($10 \cdot 55 \text{ cm}$) filled with Ar to 6 atm. Its anodic pulses were amplified ($f = 1.5 \cdot 10^3$) and fed to oscilloscopes. For the second and third counter rows the lower limits of recording were made at 200 and 400 electrons, respectively. After a very careful determination of all Card 1/2

S/056/63/044/002/010/065
B102/B186 .

The mean free path of ...

possible processes affecting the measurements and a correction for the background, the mean free path for inelastic nucleon interactions at $\sim 10^{12}$ ev in carbon was found to be 92^{+12}_{-8} g/cm². This value agrees with that found for nucleons of the 10^{10} ev range. The cross-section corresponding to this path length is $\sigma_0 = 33 \pm 7$ mb; this value agrees with that measured for $2.5 \cdot 10^{10}$ ev (Cocconi, Proc. of the Conf. CERN, 1961). There are 3 figures and 5 tables.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR
(Physics Institute imeni P. N. Lebedev of the Academy of Sciences USSR)

SUBMITTED: August 9, 1962

Card 2/2

BARADZEY, L.T.; RYETSOV, V.I.; SMORODIN, Yu.A.; SOLOV'YEV, M.V.; TOLKACHEV, B.V.

Penetration of high-energy nucleons through the atmosphere, and
the production of mesons. Trudy Fiz. inst. 26:224-246 '64.
(MIRA 17:10)

3C

L 34714-65 EW3(j)/EWT(m)/FCC/T/EWA(m)-2 IJP(c)

ACCESSION NR: AP4049587

S/0048/64/028/011/1761/1763 23

18

B

AUTHOR: Guseva, V.V.; Dubrovinn, S.A.; Lebedev, A.M.; Morozov, A.Ye.; San'ko, L.A.;
Sokolovskiy, V.V.; Slavatinskiy, S.A.; Volkachov, D.V.

TITLE: Nucleon-nucleus collisions at high energies /Report, All-Union Conference
on the Physics of Cosmic Rays held in Moscow 4 to 10 Oct 1963/

SOURCE: AN SSSR, Izv. Seriya fizicheskaya, v.28, no.11, 1964, 1761-1763

TOPIC TAGS: cosmic ray, high energy interaction, nucleon nucleus interaction, hy-
drodynamic theory

ABSTRACT: The work presents an attempt to describe the interaction of high-energy
(10^{11} to 10^{12}) nucleons with complex nuclei from the standpoint of a succession of
statistically independent encounters of the incident particle with the nucleons of
the target nucleus. The nucleon interaction cross sections were calculated by the
classical method of impact parameters. The Hofstadter data on electron scattering
were used to evaluate the proton densities. Numerical calculations were carried out
for the cross sections for nuclei with $A = 6, 9, 12, 14, 16, 56, 122$ and 207 . The

1/13

L 34714-65

ACCESSION NR: AP4049587

calculated values of σ are in good agreement with the power function $\sigma = \sigma_0 A^{3/4}$. Further, there were calculated the values of the mean fraction $\bar{\Delta}$ of the energy retained by the nucleon after interaction with a complex nucleus. The results of these calculations are compared with some experimental data in Fig.1 of the Enclosure. The agreement is best (but far from perfect) on the assumption of an inelasticity coefficient 0.35 ($\bar{\Delta}_0 = 0.65$). The values of the anisotropy parameter (proportional to $\sigma/\text{isotropic}$) as a function of the jet multiplicity n_g (which may be taken as a measure of the length of the reaction tube or the number of nucleons with which the incident particle interacts) obtained by interpolation of the experimental data are compared in Fig.2 of the Enclosure with the functional dependence calculated on the basis of hydrodynamic theory; here the disagreement is substantial. This is interpreted as an argument in favor of the assumption of successive interaction of the incident nucleon with the nuclear nucleons. "The authors are grateful to N.A.Dobrotin, Ye.L.Feynberg, G.B.Zhdanov and D.S.Chernavskiy for discussions and valuable suggestions." Orig.art.has: 4 formulas and 2 tables.

2/4

L 34714-65

ACCESSION NR: AP4049587

ASSOCIATION: Fizicheskiy institut im.P.N.Lobedeva Akademii nauk SSSR (Physics Institute, Academy of Sciences, SSSR)

SUBMITTED: OO

NR REF Sov: 007

SUB CODE: AA, NP

ENCL: 01

OTHER: 002

3/4

TOLKACHEV, D.
Ya. P. BERMAN, Kozhevno-Obrusnaya from. S.S.S.R. 19, 270-5(1934)

"APPROVED FOR RELEASE: 07/16/2001

CIA-RDP86-00513R001756110003-7

TOLKACHOV, D.

Y. P. TIRIBAII, Kozh-Obauv Prom, 1934, 13, 270-275

APPROVED FOR RELEASE: 07/16/2001

CIA-RDP86-00513R001756110003-7"

34122
S/124/62/000/001/020/046
D237/D304

10.3400
26.5200

AUTHOR:

Tolkachev, D. F.

TITLE:

Investigating heat exchange by convection in a two-phase stream of the "combined-layer" type at temperatures below 300°C

PERIODICAL:

Referativnyy zhurnal, Mekhanika, no. 1, 1962,
74-75, abstract 1B541 (Izv. Kazansk. fil. AN
SSSR. Ser. energ. i vodn. kh-va, 1961, no. 2,
pt. 2. Vopr. energ., 75-100)

TEXT: Part of a vertical shaft of height 2.4 m and area 0.53 m^2 was filled with 24 rows of perforated shelves placed at an angle of 35° to the horizontal. Granulated materials (steel and cast iron shot) of diameters of 3 - 5 mm were poured through the top while a stream of exhaust gases at fairly low temperature (less than 140°C) was blown through the shaft either upwards

Card 1/3

34122

S/124/62/000/001/020/046

D237/D304

Investigating heat exchange...

(counterflow) or in the transverse direction (mixed flow). The time of contact of shot with the heating gas was regulated by tilting the shelves and was approximately 7 - 9 sec. The heated shot fell through a valve into water, cooled down, after which it was elevated by a mechanical belt to a height of 9 meters, and again dropped into the shaft. Amounts and temperatures of solid and gaseous phases were measured. Temperatures of the solid particles on entering and leaving the shaft were measured by indirect methods (calorimetry). The author points out a number of deficiencies of the set-up, hindering exact quantitative determinations, but does not mention whether the difficulties were overcome and in what manner. Velocity of gas flow was varied within narrow limits, and Reynold's criterium, based on the size of the shot, varied from 1440 to 1840 for the counterflow, and from 2220 to 3330 for the mixed flow. Volume loss of solid phase did not exceed 0.05%, and hydraulic reaction of the heat exchanger with the particles was practically identical to that

Card 2/3

34122

Investigating heat exchange...

S/124/62/000/001/020/046
D237/D304

during the empty run. Coefficients of heat transfer to the surface of shot, calculated by the author, were $300 - 400 \text{ Kcal/m}^2 \text{ hr. } {}^\circ\text{C}$ for the mixed flow, and $\sim 400 - 500 \text{ Kcal/m}^2 \text{ hr. } {}^\circ\text{C}$ for the counterflow. In order to generalize the results obtained, the author at first enumerates all criteria of similarities possible for the given system, and then restricts himself to the relation between Reynolds' and Nusselt's criteria, using logarithmic coordinates. The exponential relation $N = AR^n$ obtained by the author differs little from other authors' results. On the basis of performed determinations of heat-transfer coefficients, far-reaching deductions are made on the possibility of wide application of heat exchangers with granular materials for economical utilization of heat of exhaust gases. [Abstracter's note: Complete translation.]

Card 3/3

TOLKACHEV, D.F., inzh.

Heat exchangers for mines operating on low-temperature heat.
Prom. energ. 17 no.9:15-20 S '62. (MIRA 15:8)
(Heat exchangers)
(Mines and mineral resources--Equipment and supplies)

S/124/62/000/001/021/046
D237/D304

10.3400

AUTHOR: Tolkachev, D. F.

TITLE: Evaluating various granular materials according
to their thermo-physical properties

PERIODICAL: Referativnyy zhurnal, Mekhanika, no. 1, 1962,
75, abstract 1B542 (Izv. Kazansk. fil. AN SSSR.
Ser. energ. i vodn. kh-va, 1961, no. 2, pt. 2.
Vopr. energ., 101-107)

TEXT: In textbooks and reference books, the solution is de-
rived to the problem of heating a solid sphere in the medium of
constant temperature, and relations are given connecting the
heating of the whole sphere, its surface, and its center with
Biot and Fourier parameters. The above relations are utilized
by the author in comparing the heating of spheres of 3 - 5 mm
diameter, made from various materials (steel, cast iron, glass,
china, aluminum, basalt, gravel, and marble), with coefficients
✓β

Card 1/2

Evaluating various...

S/124/62/000/001/021/046
D237/D304

of heat transfer known. Substitution of the latter values is based on the N - R relations obtained earlier by the author for steel spheres and cast iron shot poured down the shaft containing perforated shelves against the flow of gas. The purpose of the above calculation was the comparison of usefulness of spheres of various materials in shaft heat-exchangers of that type. *[Abstracter's note: Complete translation.]* ✓B

Card 2/2

245200
S/081/62/000/005/045/112
B151/B101

AUTHOR: Tolkachev, D. F.

TITLE: An investigation of the convective heat-exchange in a two-phase flow of the "combined layer" type at temperatures below 300°C

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 5, 1962, 343, abstract 5I61 (Izv. Kazansk. fil. AN SSSR. Ser. energ. i vodn. kh-va", part 2, no. 2, 1961, Vopr. energ., 75-100)

TEXT: The heat-transfer from a gas to a granulated hard material is studied, with artificial turbulence produced in the boundary gas layer by granules falling in a vertical shaft and rolling on narrow latticed shelves set in the shaft at an angle of 35° to the horizontal. The shaft, with a cross-section of 0.53 m^2 has 24 series of sloped shelves and is included in the enclosed contour of circulation of the heated gas. The circulation of the granulated material (steel balls of diameter 4-5 mm and

Card 1/2

S/061/62/000/005/045/112

B151/B101

An investigation of the convective ...

cast iron shot of diameter 3-5 mm) is produced using a scoop elevator. The experiments were carried out with parallel motion of the gas and the solid phase and also in counter-flow conditions, with gas temperatures at the heat-exchanger inlet of 84-139°C and at the outlet of 57-86°C. The gas velocity was 11.3 - 14.2 m/sec with direct flow and 7.05 - 8.86 m/sec with countercurrent flow. The results of these experiments show that the method using artificial turbulence from the movement of solid material leads to an increase in the coefficient of heat exchange from the gas to

391 kcal/m².hr.deg (straight flow) and to 528 kcal/m².hr.deg (counterflow) with relatively low hydraulic resistance of the heat exchanger. The experimental data are described by the expression $Nu = ARe^n$, where $A = 0.6$ and $n = 0.615$ for countercurrent of the gas and the solid phase in the region of Re 2220 - 3330, and $A = 0.99$ and $n = 0.51$ for straight flow of the gas and the solid phase in the region Re 1440 - 1840. Heat exchangers with granulated material can be used for the rational use of the heat from waste gases. [Abstracter's note: Complete translation.]

Card 2/2

TOLKACHEV, D.F.

Study of convective heat exchange in a two-phase "combinational layer" type flow at temperatures not exceeding 300 . Trudy Kazan.
fil.AN SSSR.Ser.energ.i vod.khoz. no.2;75-100 '61. (MIRA 15:3)
(Heat--Transmission) (Heat exchangers)

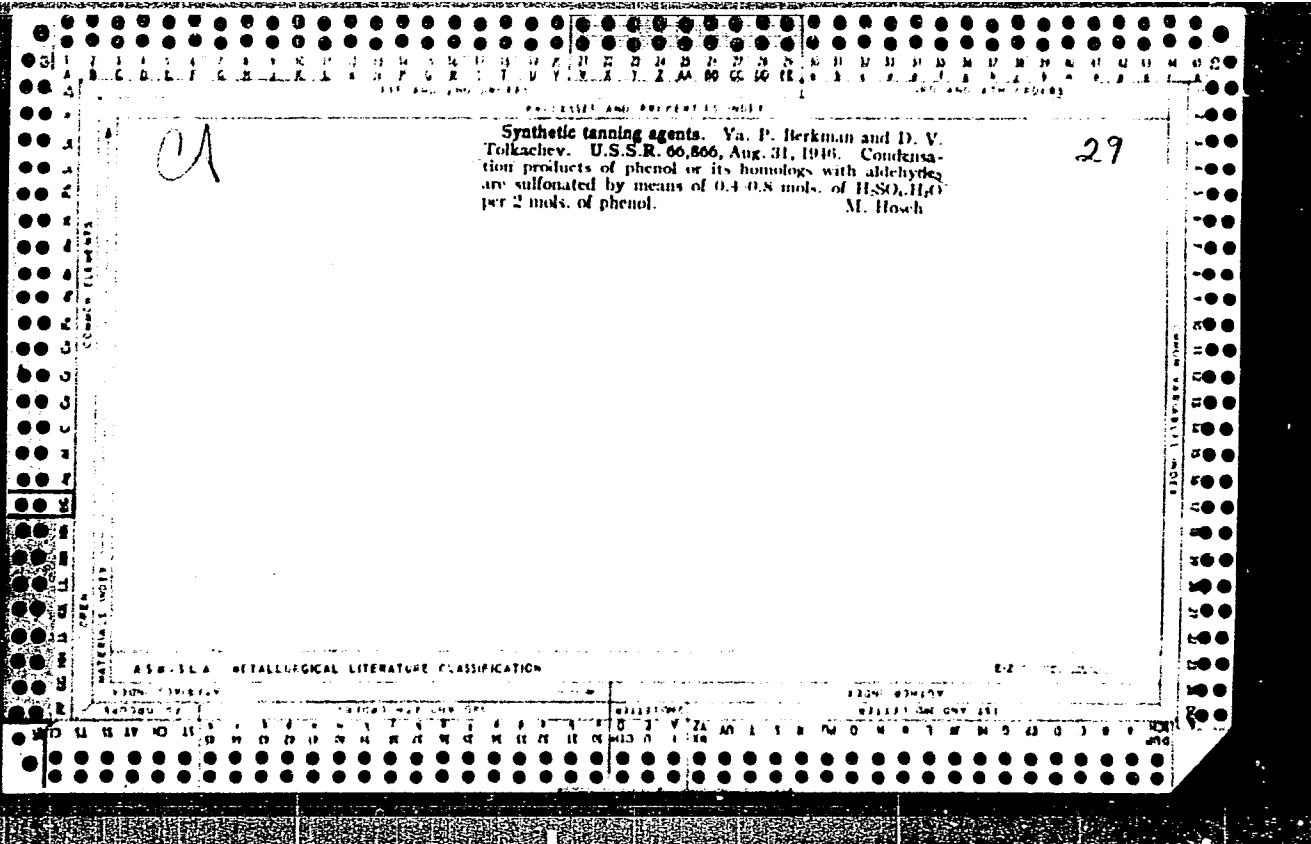
SKOBEL'TSYN, Yu.V.; TOLKACHEV, D.F.

Basic parameters and economic indices of water heating in green-house and cold-frame gardening when utilizing heat waste. Izv. Kazan. fil. AN SSSR. Ser. energ. i vod. khoz. no.1:71-85 '57.
(MIRA 11:10)

(Greenhouses--Heating and ventilation)

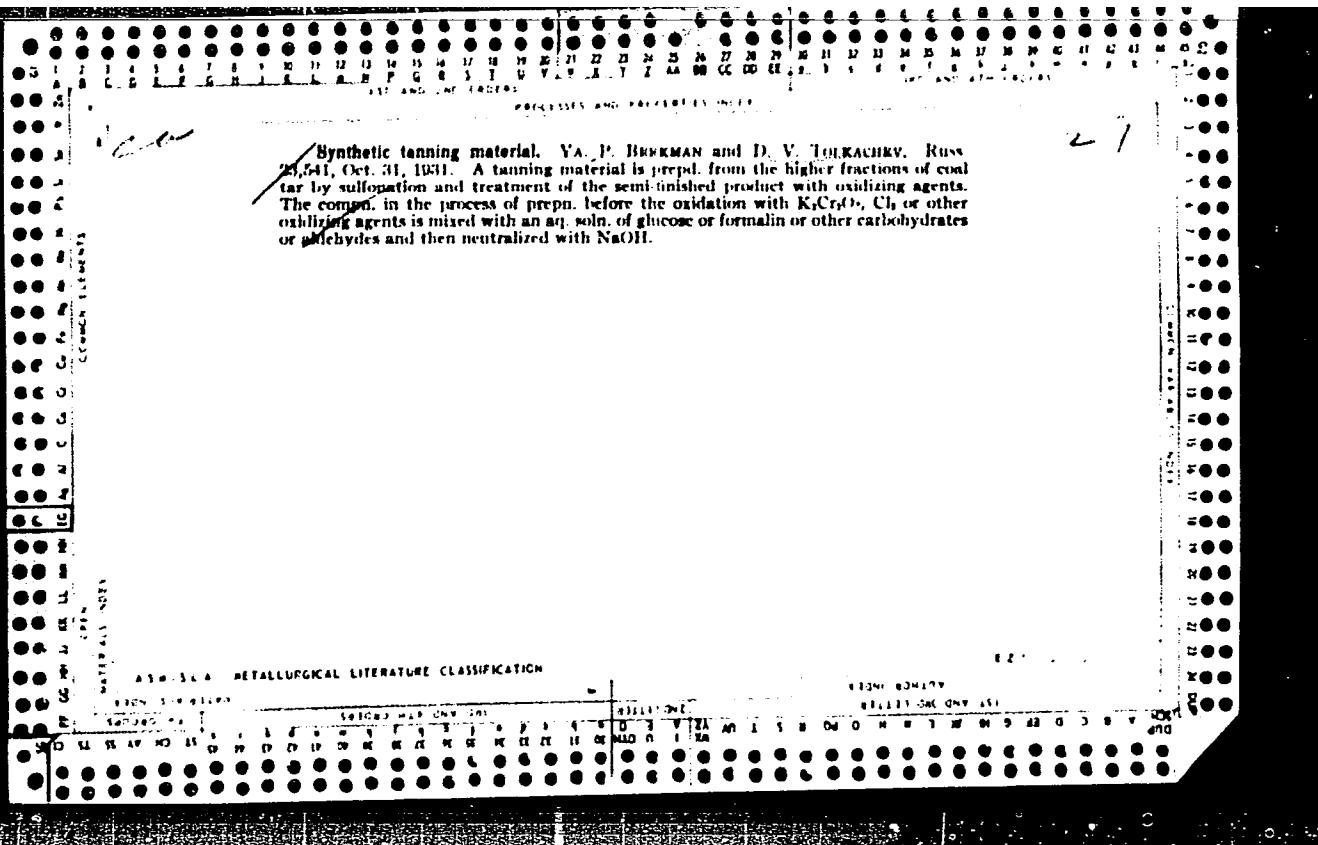
TOLKACHEV, D.F.

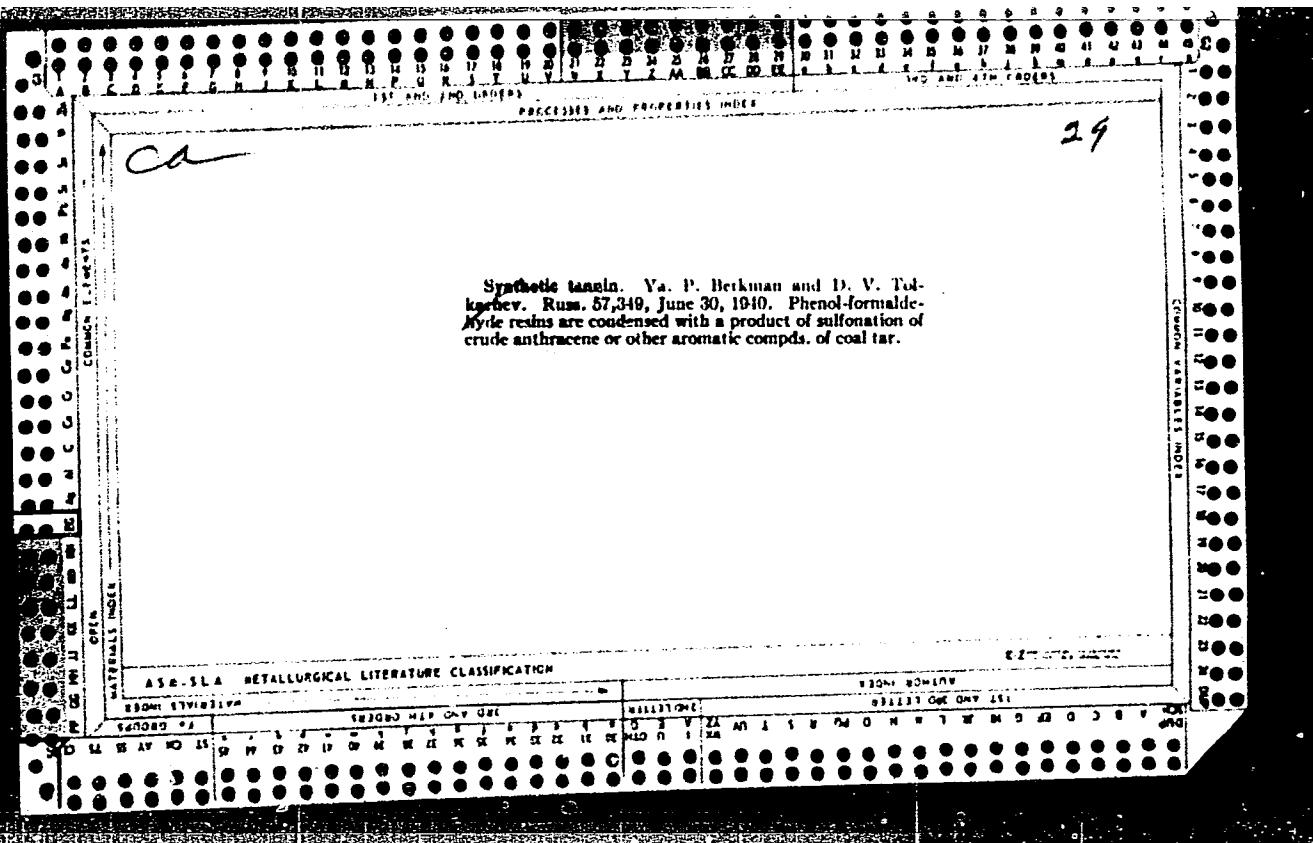
Evaluation of different grain-type materials in the light of their
thermophysical properties. Trudy Kazan.fil.AN SSSR.Ser.energ.i
vod.khoz. no.2:101-108 '61. (MIRA 15:3)
(Fuel research) (Heat—Transmission)

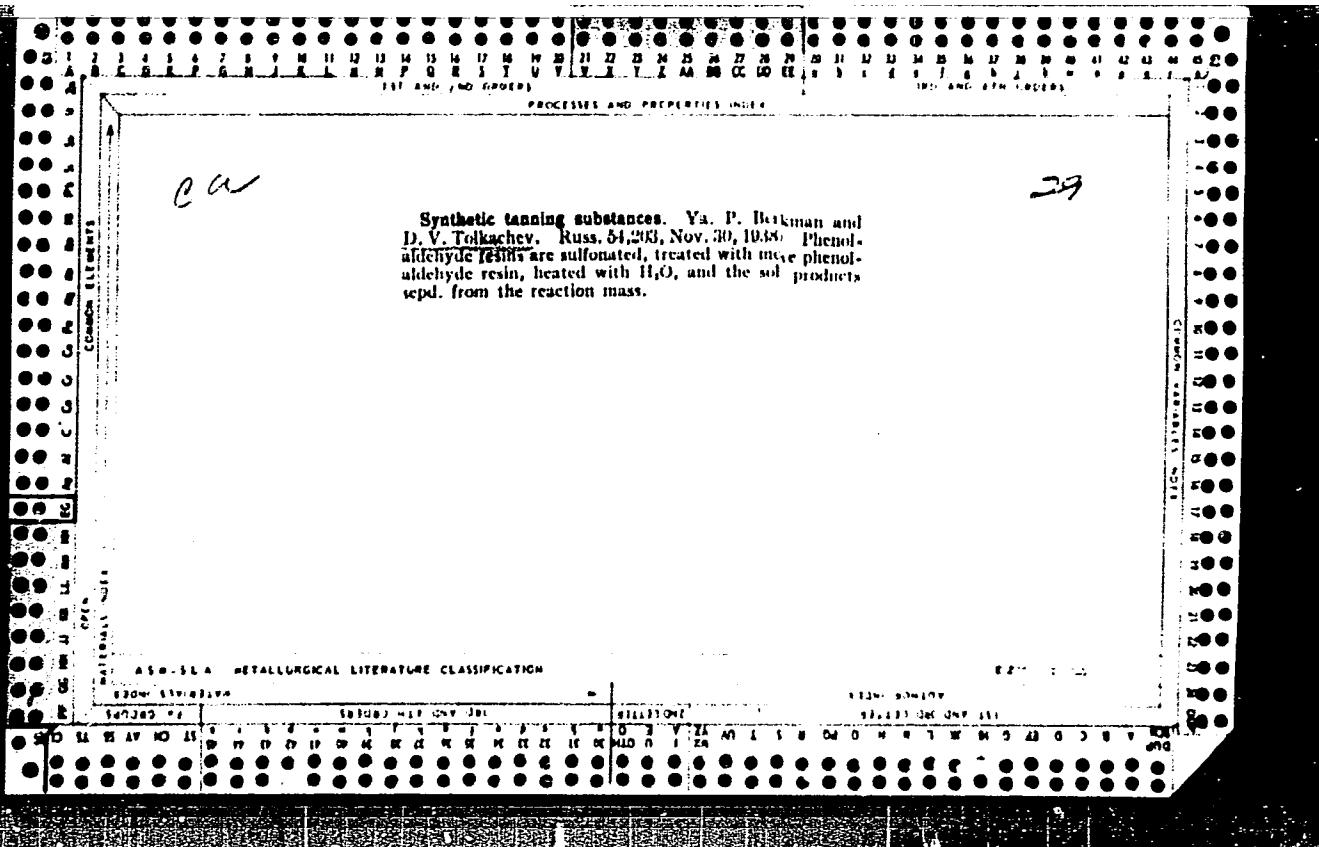


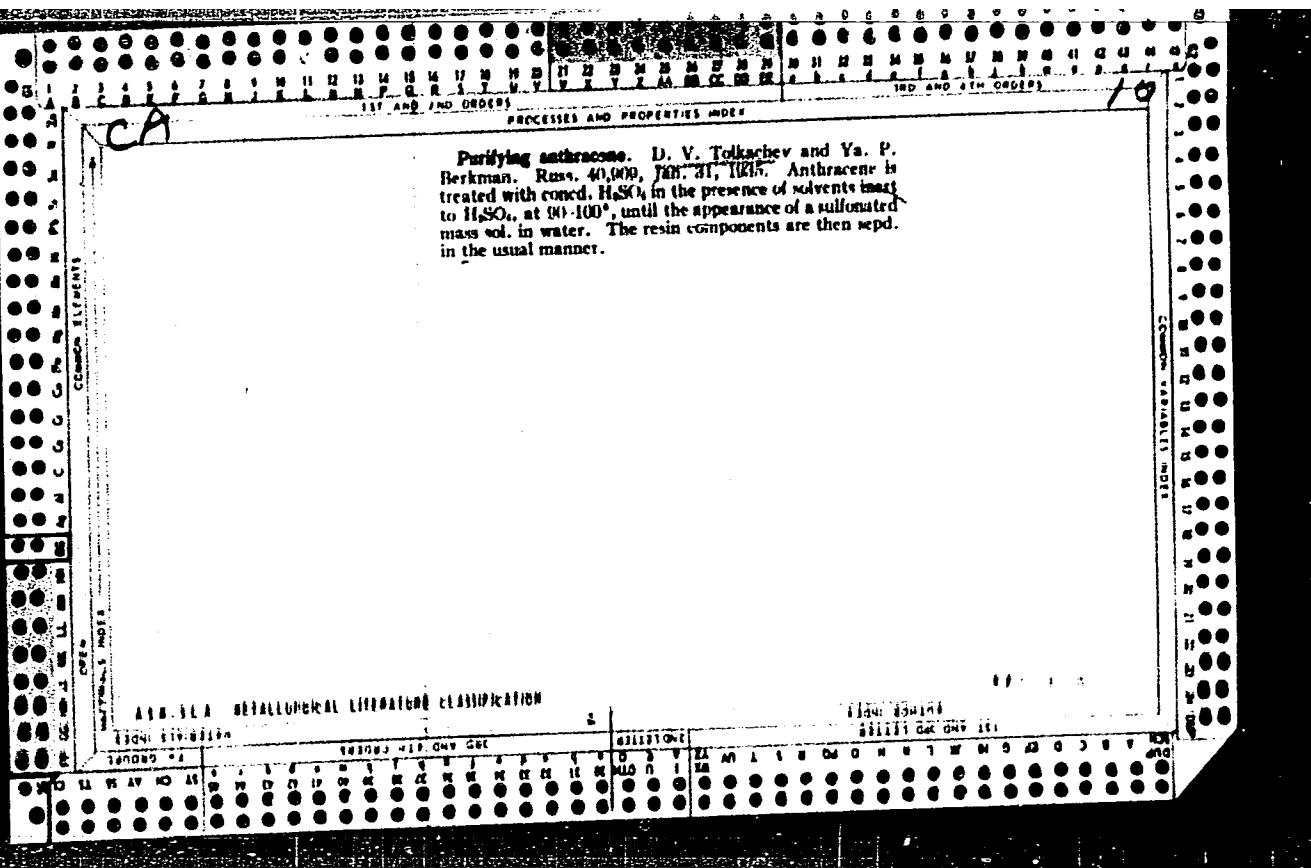
CR
Synthetic landing material. Ya. P. Berkman and D. V. Tolkačev. Russ. 80,08, March 31, 1911. Phenol-formaldehyde condensation products are sulfonated until completely sol., and then treated with formaldehyde.

29









SMIRNOV, M., chlen profsoyuza rabochikh ugol'noy promyshlennosti SSSR s 1914 goda, personal'nyy pensioner; ARTAMONOV, Ya., chlen profsoyuza rabochikh ugol'noy promyshlennosti SSSR s 1917 goda, personal'nyy pensioner; MINEYEV, V., master-vzryvnik; SULIN, I., rabochiy ochistnogo zaboya, kandidat v chleny TSentral'nogo komiteta profsoyuza rabochikh ugol'noy promyshlennosti SSSR; TOLKACHEV, F.; NIKOLAYCHUK, V.

Thoughts on the regulations. Sov. shakht. 11 no.3:24-26 Mr '62.
(MIRA 15:5)

1. Predsedatel' uchastkovogo komiteta profsoyuza shakhty "Ob'yedinennaya" tresta Cheremkhovugol' (for Mineyev).
2. Shakhta imeni Kirova tresta Yegorshinugol' (for Sulin).
3. Zaveduyushchiy organizatsionno-massovym otdelom Kemerovskogo oblastnogo komiteta profsoyuza rabochikh ugol'noy promyshlennosti SSSR (for Tolkachev). 4. Dorozhnyy master shakhty imeni Kalinina v Donbasse (for Nikolaychuk).

(Coal miners) (Trade unions)

TOLKACHEV, G.M.; PETROV, G.M.

Practice of an integrated drilling crew. Razved.i okh.nedr 28
no.1:47-48 Ja '62. (MIFA 15:3)

1. Trest "Zapsibzoloto".
(Boring)

TOLKACHEV, G.M.

Effect of the type of flushing on the mechanical cutting speed in
diamond drilling. Razved. i okh. nedr. 30 no.8:25-28 Ag '64.
(MIRA 17:10)

1. Leningradskiy gornyy institut.

TOLKACHEV, G.M.

Performance os small diamond bites. Razved. i okh. nedr 27
no.8:53-54 Ag '61. (MTRA 16:7)

1. Gosudarstvennyy vsesoyuznyy Zapadno-Sibirskiy zolotopromyshlennyy
trest. (Boring machinery)

TOLKACHEV, G.M.

Technical means for drilling boreholes using fine-diamond
bits with backwash. Razved. i okh. nedr 31 no.7:38-40
(MIRA 18:11)
J1 '65.

1. Trest "Zapsibzoloto".

TOLKACHEV,
SIGOLAEV, G.; TOLKACHEV, I.

"Use of the 'SDU-110' and 'SDU-138' in the State Bank" by I.Kolychev.
Reviewed by G.Sigolaev, I.Tolkachev. Dem. i kred. 15 no.1:55-57
Ja '57. (MLRA 10:3)
(Calculating machines) (Banks and banking) (Kolychev, I.)

TOLKACHEV, I. V., Cand of Med Sci -- (diss) "Anatomy of the End Filum of the Spine
of Humans and Some Animals," Ryazan', 1959 16 pp (Ryazan' Medical Institute im
Academician I. P. Pavlov) (KL, 8-60, 119)

TOLKACHEV, L.A., inzh.; KRICHESKII, I.Ye., inzh.; SUDAKOV, V.B., inzh.;
ZHILIN, V.A., inzh.

Use of a polyethylene film in the prevention of cracking due to
shrinkage. Energ. stroi. no.1:56-59 '65. (MIRA 18:7)

TOLKACHEV, L.A.; KUPERMAN, V.L., red.; MATVEYEV, G.I., tekhn.red.

[Reduction of cost and acceleration of concrete construction
at the erection of hydroelectric power stations] O snizhenii
stoimosti i uskorenii proizvodstva betonnykh rabot na stroi-
tel'stve GES. Moskva, Gos.energ.izd-vo, 1959. 102 p.

(MIRA 12:7)

(Concrete construction)
(Hydroelectric power stations--Design and construction)

TOLKACHEV, L.A. inzh.

Conference for generalizing experience with the erection of the
concrete structures of the Bratsk Hydroelectric Power Station.
Gidr. stroi. 32 no.8:41-44 Ag '62. (MIRA 15:9)

(Concrete construction--Congresses)
(Bratsk Hydroelectric Power Station)